

The internal gas passage channel of the endoscope is connected to a source of controlled pressurized gas, such as oxygen. Finally, the viewing eyepiece section of the endoscope is connected to a video system, such as one including a small television camera, for both recording and displaying the transmitted image for the attending anesthetist. The display of the image can be done on a miniature, preferably color, television monitor that can be located in a location convenient for the anesthetist.

By displaying an enlarged transmitted image on a video monitor, two immediate benefits over prior art instruments are achieved. First, the enlarged view of the patient's anatomical details assists the anesthetist in identifying the location of the forward tip end of the endoscope. Secondly, the anesthetist is offered a binocular view of the area of interest as opposed to the miniature, monocular view afforded him by prior art instruments employing only a fiber optics imaging system.

While observing the image displayed with the present invention, the anesthetist introduces the distal end of the endoscope into the patient's mouth and manipulates the bending of the distal end portion of the sheath member of the endoscope to accommodate the encountered anatomy of the patient. Due to the controllable bending of the distal or forward tip end of the endoscope, the distal or forward tip end portion of the endoscope can be carefully maneuvered through the patient's body cavity minimizing or even eliminating patient trauma.

When the patient's vocal cords are visualized, the distal end of the endoscope and the endotracheal tube can be carefully advanced through this delicate structure with ease and without inducing patient trauma. Entering the patient's trachea, the endoscope and the endotracheal tube are advanced until the bifurcation of the trachea is visualized. At this stage of the intubation process, further advancement of the endoscope is stopped and the thumb control is released on the bendable distal portion of the endoscope sheath member.

With the endoscope properly positioned, the position of the endotracheal tube is adjusted toward the distal end of the endoscope until it is properly located in the patient's trachea. At this point, the endoscope can be withdrawn from the patient's trachea through the endotracheal tube. The endotracheal tube is left in position and is connected to the inhalation anesthetic machinery. The cuff of the endotracheal tube is then inflated to hold the tube in place and to seal the airways external to the tube.

While the endoscope is being advanced through the patient's vocal cords and trachea, positive pressure is supplied by a gas, such as oxygen, through the gas passageway channel of the endoscope. This continues ventilation and insufflation of the patient so as to ensure diffusion oxygenization, even in the paralyzed (respiration paralysis induced by the anesthetist) patient, as well as to prevent fogging of the imaging system of the endoscope.

Finally, the entire intubation process may be video taped or otherwise recorded on a recording medium for documentation purposes, including further study or teaching.

The invention described above is, of course, susceptible to many variations, modifications and changes, all of which are within the skill of the art. It should be understood that all such variations, modifications and changes are within the spirit and scope of the invention and of the appended claims. Similarly, it will be under-

stood that it is intended to cover all changes, modifications and variations of the example of the invention herein disclosed for the purpose of illustration which do not constitute departures from the spirit and scope of the invention.

What is claimed is:

1. An endoscope comprising:

(a) an elongated sheath member having distal and proximal ends adapted for introduction into a body cavity and having at its distal end, a first, selectively controllable bendable section housing an image-forming optical system, and, at its proximal end, a generally rigid section including a control housing, the ratio between said first, selectively controllable bendable section and said generally rigid section being approximately one-third to two-thirds;

(b) an image transmitting optical system extending through said sheath member, said image transmitting optical system having forward and rearward ends, the forward end of said image transmitting system operatively located behind and adjacent said image forming system and the rearward end thereof terminating in said control housing, thereby permitting an image of an object adjacent said distal end to be viewed in said proximal end portion;

(c) a light transmitting system extending through said sheath member, said light transmitting system having forward and rearward ends, the forward end of said light transmitting system operatively located adjacent said image forming optical system and the rearward end thereof terminating in said control housing and adapted to be operatively connected to a light source for providing illumination for said image forming optical system;

(d) a channel extending through said sheath member, said channel having forward and rearward ends, the forward end of said channel operatively located adjacent said image forming optical system and the rearward end thereof terminating in said control housing and adapted to be operatively connected to a selectively controllable source of pressurized gas;

(e) means operatively connected to the forward end of said channel for directing a flow of pressurized gas across said image forming optical system for keeping said image forming optical system operationally clear; and

(f) control means in said control housing operatively connected to said first selectively controllable bendable section of said sheath member for manipulating said distal end portion of said sheath member to permit selective manipulation of said distal end portion of said sheath member through a patient's tracheal anatomy.

2. An endoscope as recited in claim 1 wherein said rearward end of said image transmitting system is adapted to be operatively connected to a small video camera system for viewing an object image on a television monitor.

3. An endoscope as recited in claim 1 further including video recording means operatively connected to said rearward end of said image transmitting system for recording said transmitted object images onto a recording medium.

4. An endoscope as recited in claim 1 wherein said means for directing a flow of pressurized gas across said